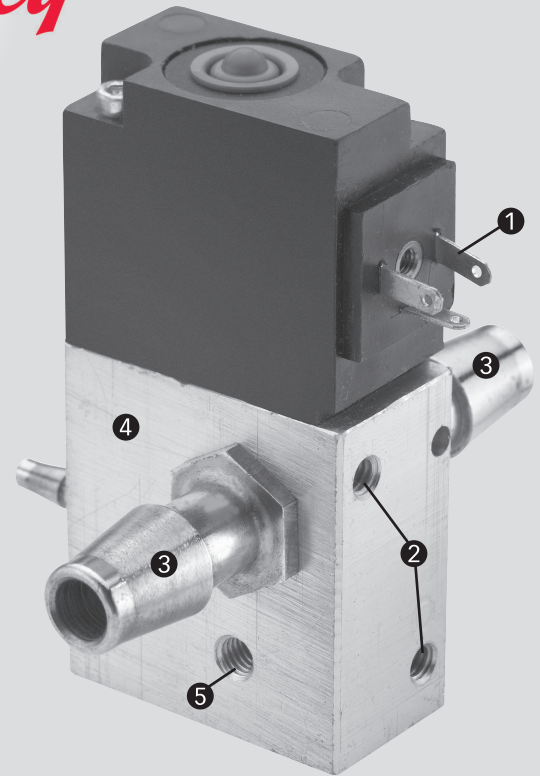


Instead of mechanical sensors the conveyor uses photo eye/reflectors and a solenoid valve to control each zone. The photocell/valve system provides greater sensitivity to lightweight cartons, plus the adjustable time delay eliminates unnecessary valve actuation, reducing ambient noise level.



- ① DIN coil plugs into electrical control box for easy connection
- ② Only two holes needed to attach assembly to conveyor side rail
- ③ Easy Mounting with push-in barbs and plug-in electrical connectors
- ④ Tee fitting utilizing valve body
- ⑤ Metered exhaust flow

Custom Solenoid Valve

Assembly Designed for Easy Retrofit on Existing Conveyor Systems



MATERIALS HANDLING
SIC:3535

THE CUSTOMER'S PRODUCT

- The customer designs and manufactures high speed custom accumulation conveyor systems.
- Customer wanted to replace its existing mechanically actuated valves with a time delay photocell/valve system to reduce noise.

THE REQUIREMENTS

- Current consumption could not exceed the 1Watt requirement of the photocell.
- Valve assembly must be designed for fast, easy retrofit.

THE HUMPHREY ENGINEERED SOLUTION

- Humphrey modified an existing, field-proven solenoid valve to minimize compression on the internal seal to reduce drag.
- The stroke was shortened to reducing the actuation force, resulting in a 75% reduction in current consumption.
- Valve body was utilized to eliminate the need for a tee fitting.
- Valve assembly incorporates plug-in electrical connectors and integral barb fittings.
- Barb quick-lock mounts eliminated the need for bolts, reducing installation time.

THE SOLUTION

Working with the conveyor manufacturer's engineers, the Humphrey Engineered Solutions Team used their knowledge of mechanically actuated systems to enhance a proven Humphrey standard solenoid valve.

The current consumption of the new valve could not exceed the 1Watt requirement of the photocell. To achieve this, Humphrey engineers modified the standard valve body to minimize compression on the internal seal, reducing drag. Then they shortened the stroke. As a result, less force was required for actuation and current consumption was reduced by 75%, allowing the new P3040 valve to meet the criterion.

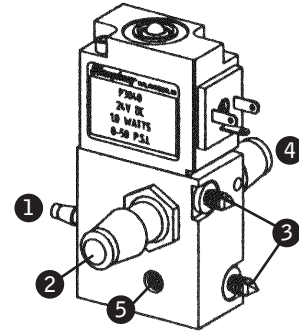
To make installation fast and easy in new and retrofit applications, the body of the P3040 valve was designed to permit customized port locations and variations in port sizes.

THE PROCESS

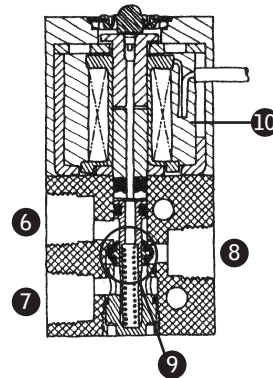
As always, the Humphrey Engineered Solutions team began with the customer's request to improve the functionality of their existing system -- in this case, to replace its existing mechanically actuated valves with a time delay photocell/valve system. The photocell/valve system would provide greater sensitivity to lightweight cartons. Plus, the adjustable time delay would make the system quieter by eliminating the mechanical noise produced by unnecessary cycling and the consequent release of compressed air.

Once Humphrey had modified their standard valve to achieve low current consumption and compatibility with the photocell, the Engineered Solutions team concentrated on functionality. The valve assembly incorporates a plug-in electrical connector and two different size pressed-in barb fittings. Utilizing the valve body, itself, eliminated the need for a tee fitting. This permitted rapid connections without the need for additional fittings. The new assembly utilized barbed quick-lock mounts in custom positions, instead of bolts, further reducing installation time.

By eliminating unnecessary cycling, the P3040 valve reduced conveyor noise level, and the custom design greatly increased installation speed. Plus, the customer got the added benefit of increased valve service life and greater conveyor reliability.



- ① 1/16" orifice, 3-way valve
- ② Integral Barb Fittings
- ③ Custom Mounting Locations
- ④ Custom Fitting Locations
- ⑤ Metered Exhaust Flow



- ⑥ In
- ⑦ Exhaust
- ⑧ Out
- ⑨ Reliable Humphrey Diaphragm Poppet Valve
- ⑩ Low Current Consumption Solenoid

Humphrey

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Humphrey Products Company • P.O. Box 2008 • Kalamazoo, MI 49003 USA • T.269.381.5500 • F.269.381.4113 • www.humphrey-products.com